Yuba Basin Modeling Forum Framework

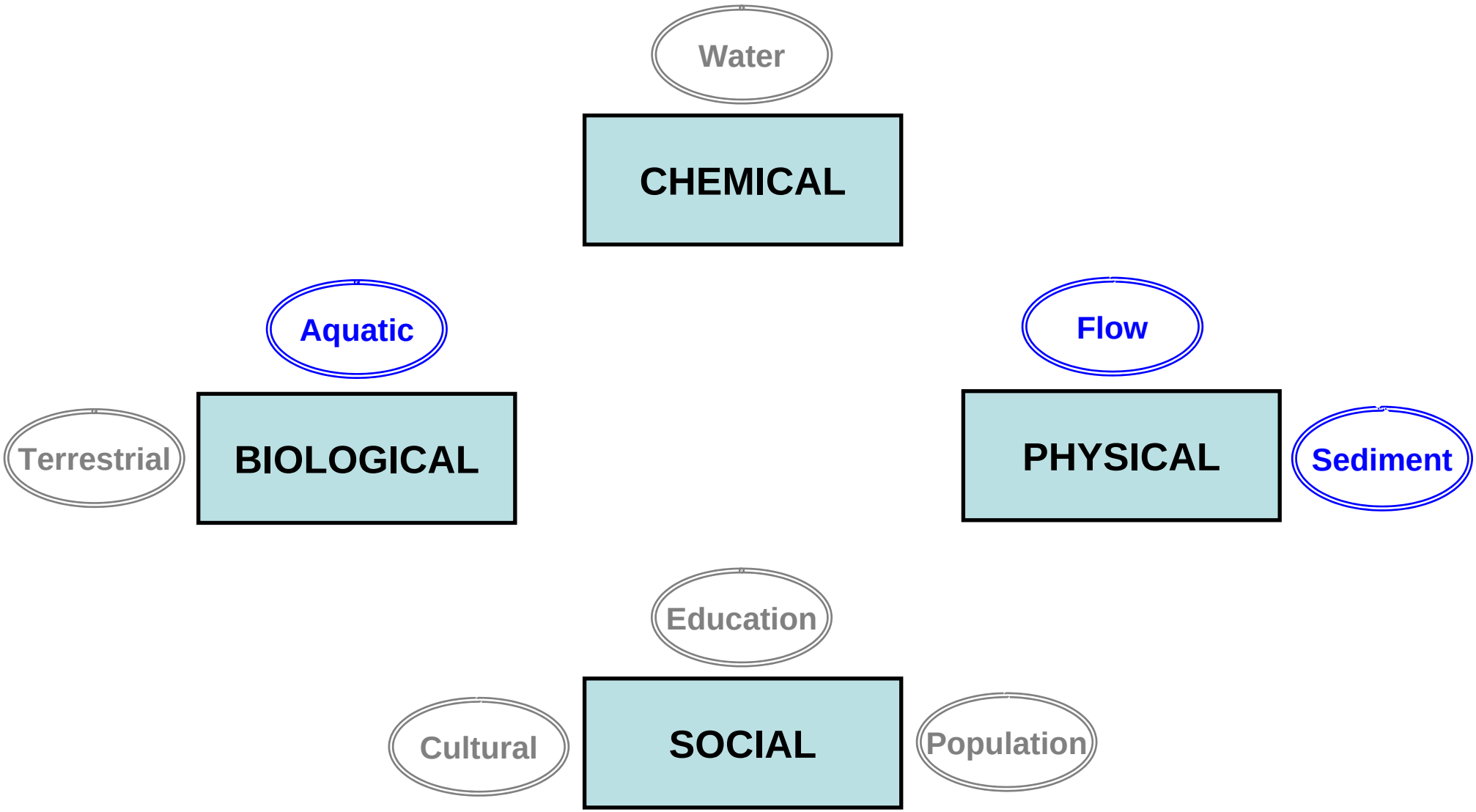
Conceptual Model

Projects

This document was first presented on 9/15/04. Successive additions are labeled with the date they were reviewed by the YBMF.

YBMF
Framework

Yuba Basin
Conceptual Model



Yuba Basin
Conceptual Model

- Biological Aquatic Resources -

Fisheries

Macroinvertebrate

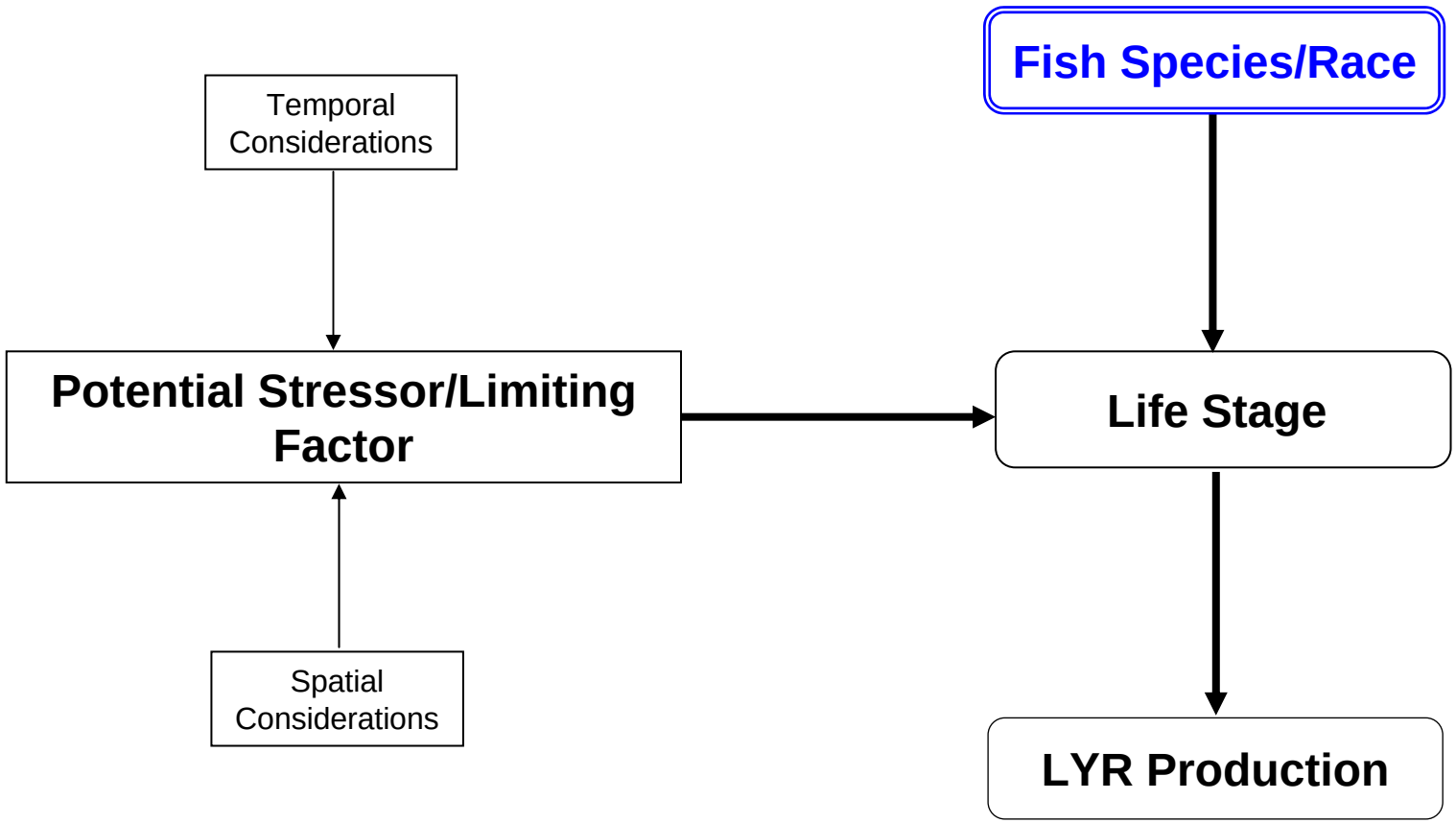
Botanical

YBMF
Framework

Yuba River Fisheries Conceptual Model

YBMF
Conceptual Model

Overview



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Yuba River Fish Species/Race

Fisheries
Conceptual Model

- Anadromous Fish (Lower Yuba River) -

Fall-run Chinook Salmon

Spring-run Chinook Salmon

Central Valley Steelhead

Green Sturgeon

American Shad

Striped Bass

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Framework

Fall-run Chinook Salmon

Fisheries
Conceptual Model

- Life Stages -

Adult Immigration & Holding

Spawning & Egg Incubation

Post-Emergent Fry Outmigration

Fry Rearing

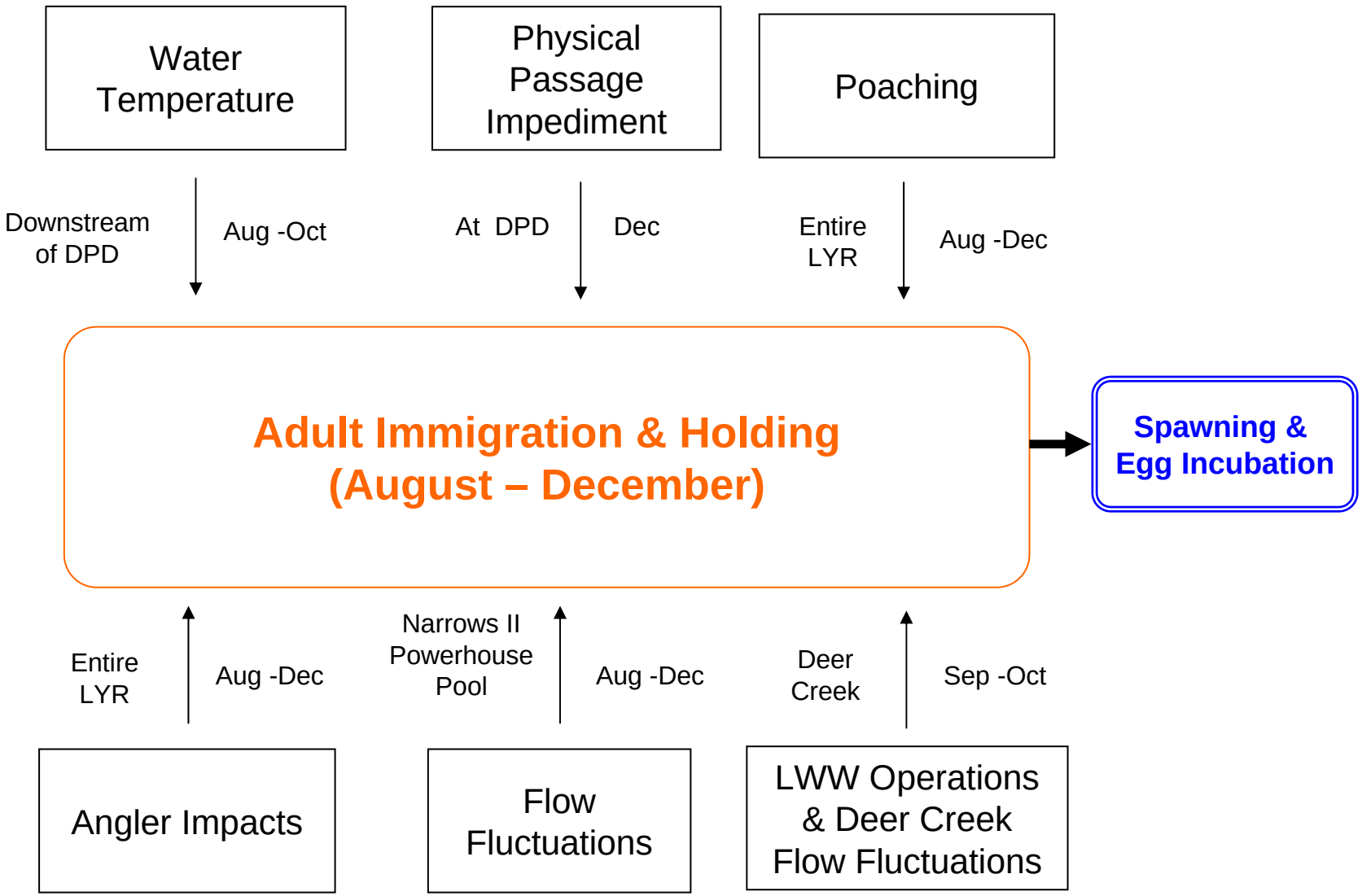
Juvenile Rearing

Smolt Outmigration

YBMF Framework

Fall-run Chinook Salmon

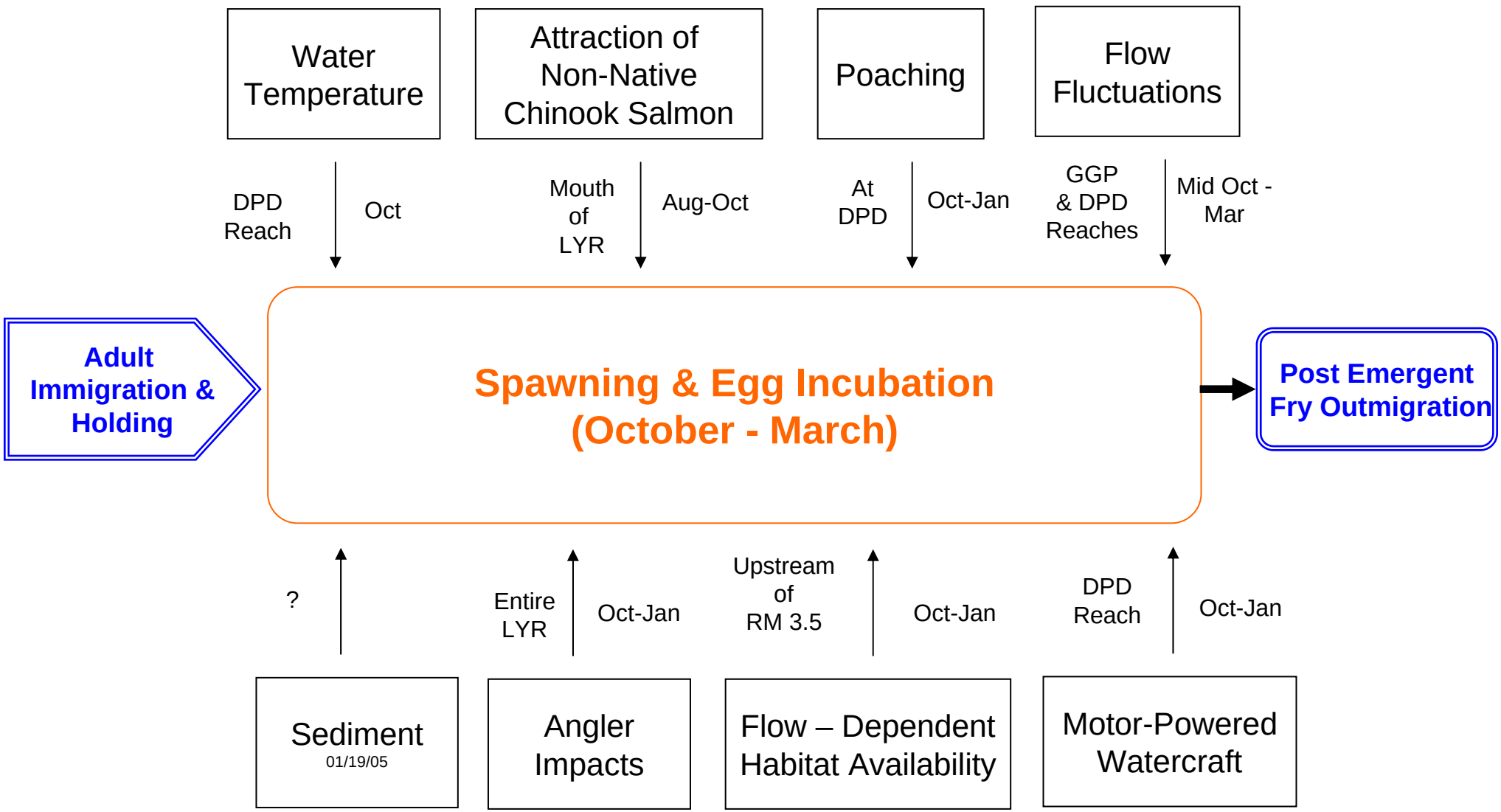
Fisheries Conceptual Model



YBMF Framework

Fall-run Chinook Salmon

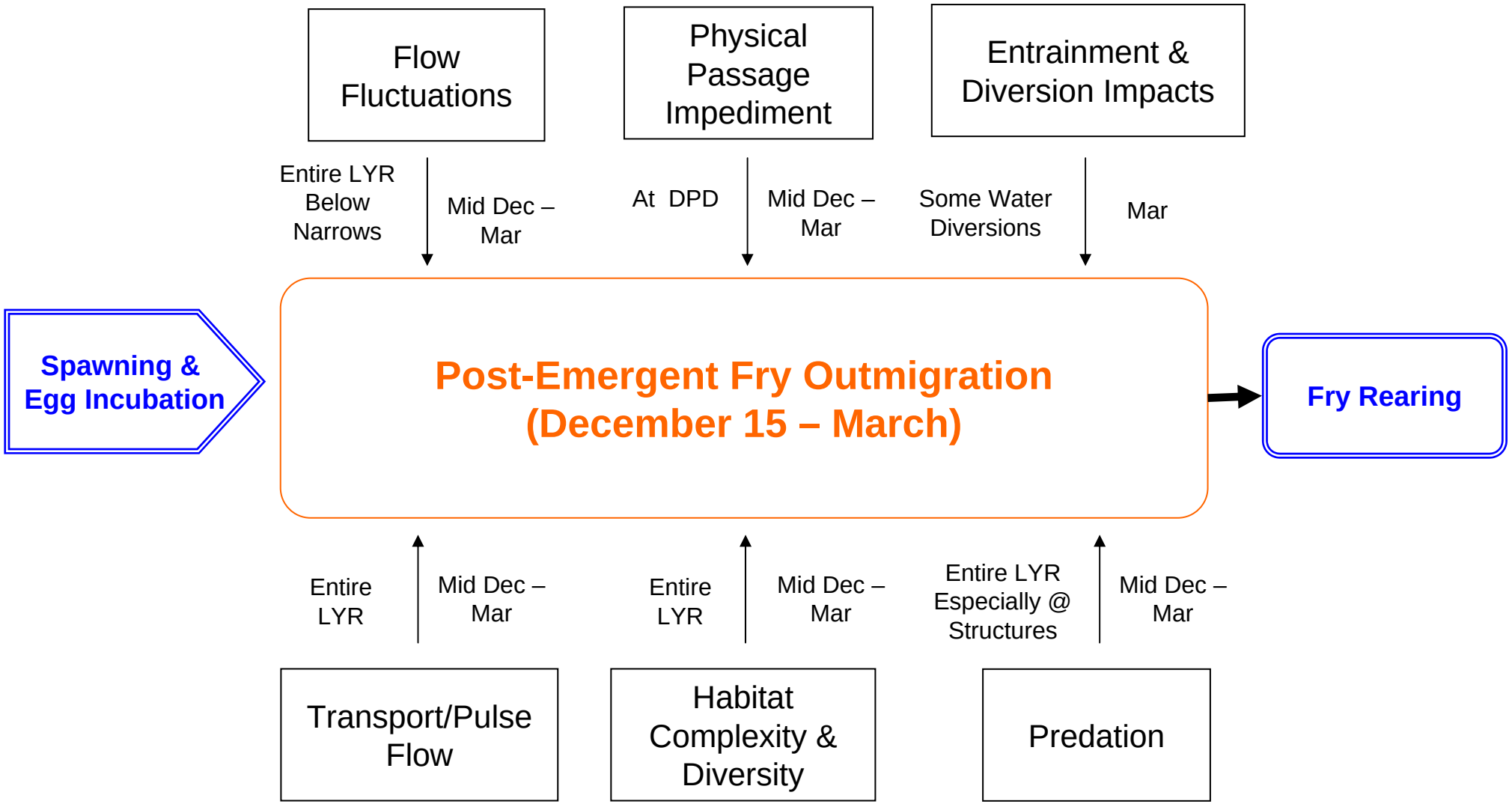
Fisheries Conceptual Model



YBMF Framework

Fall-run Chinook Salmon

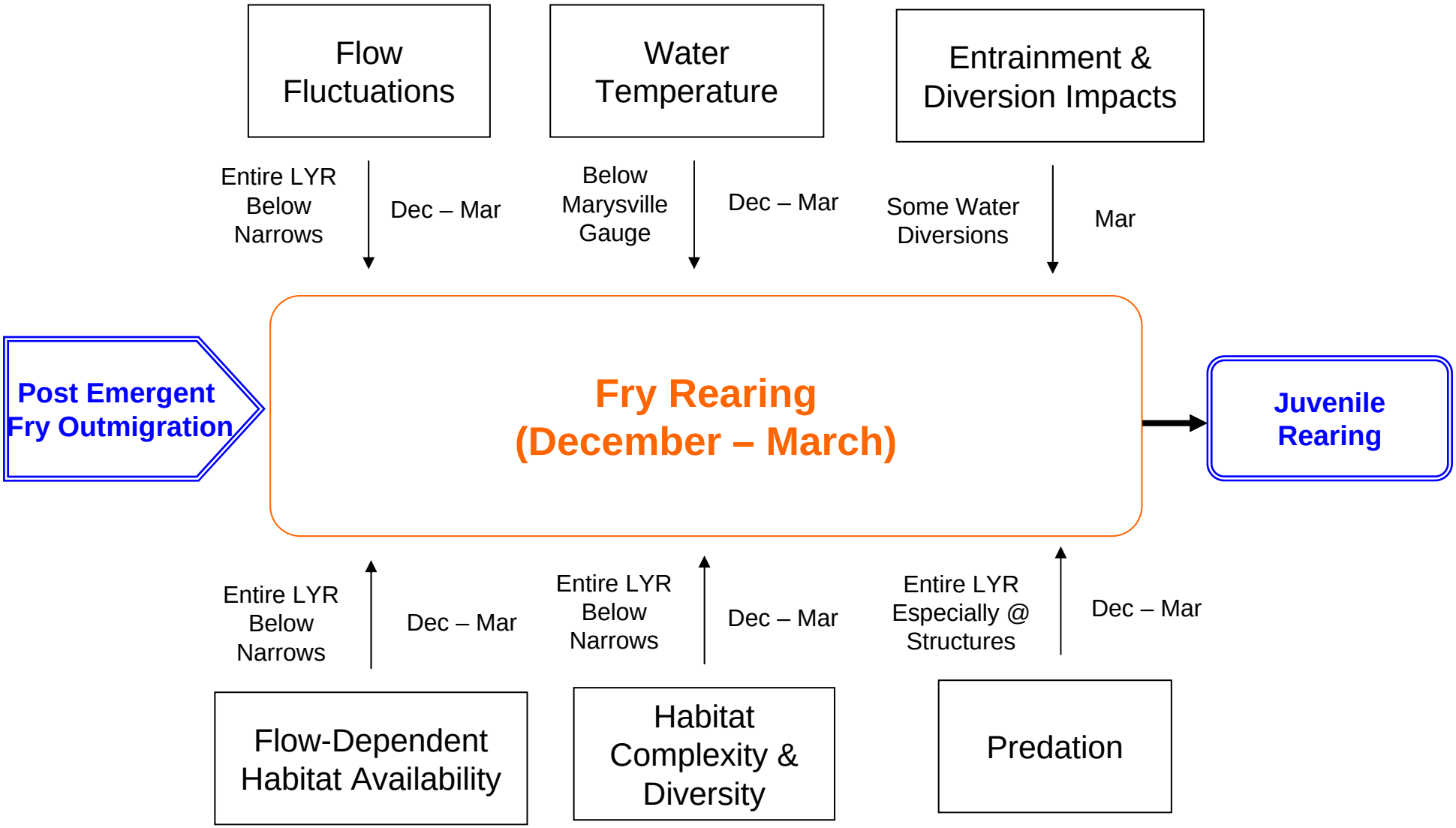
Fisheries Conceptual Model



YBMF Framework

Fall-run Chinook Salmon

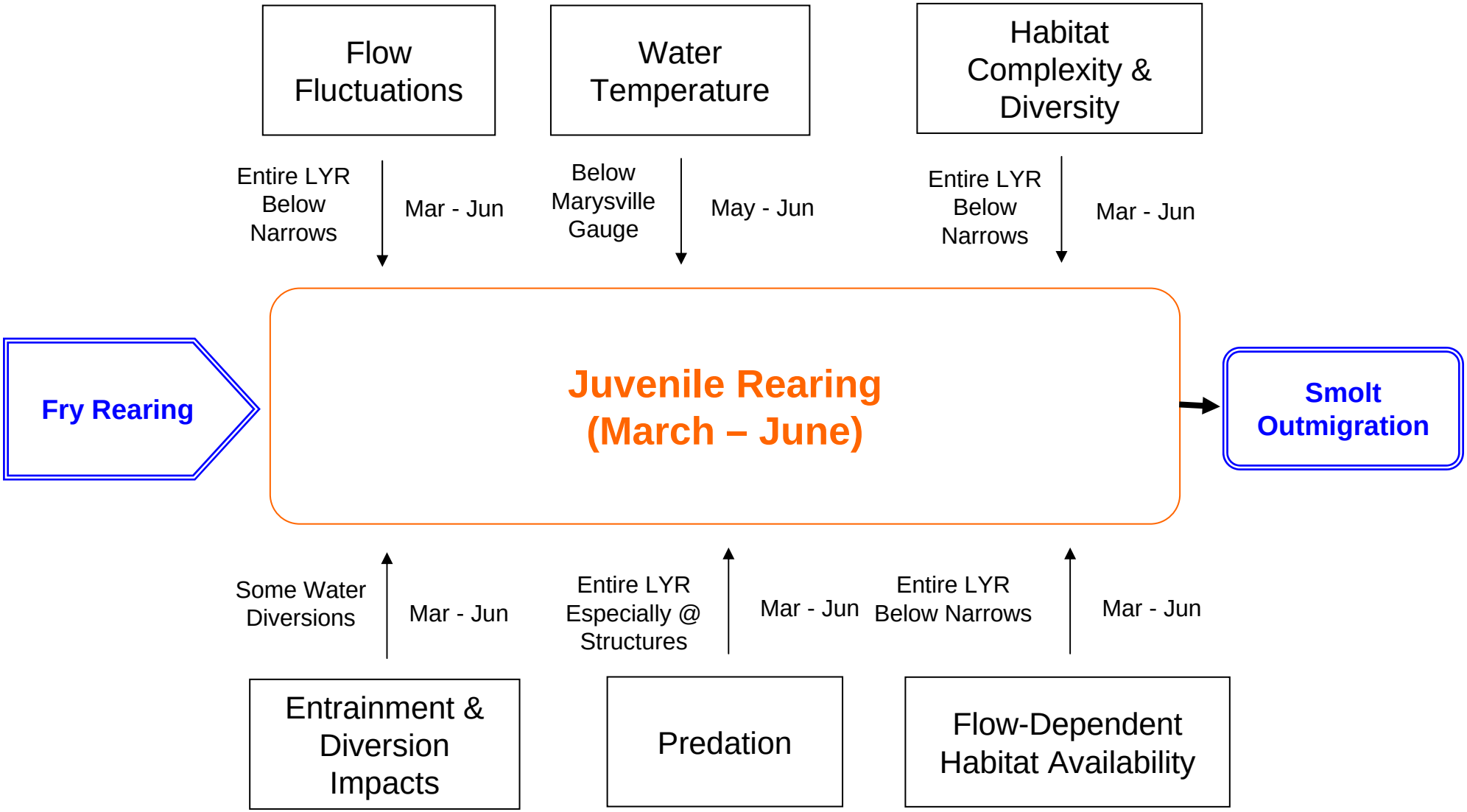
Fisheries Conceptual Model



YBMF Framework

Fall-run Chinook Salmon

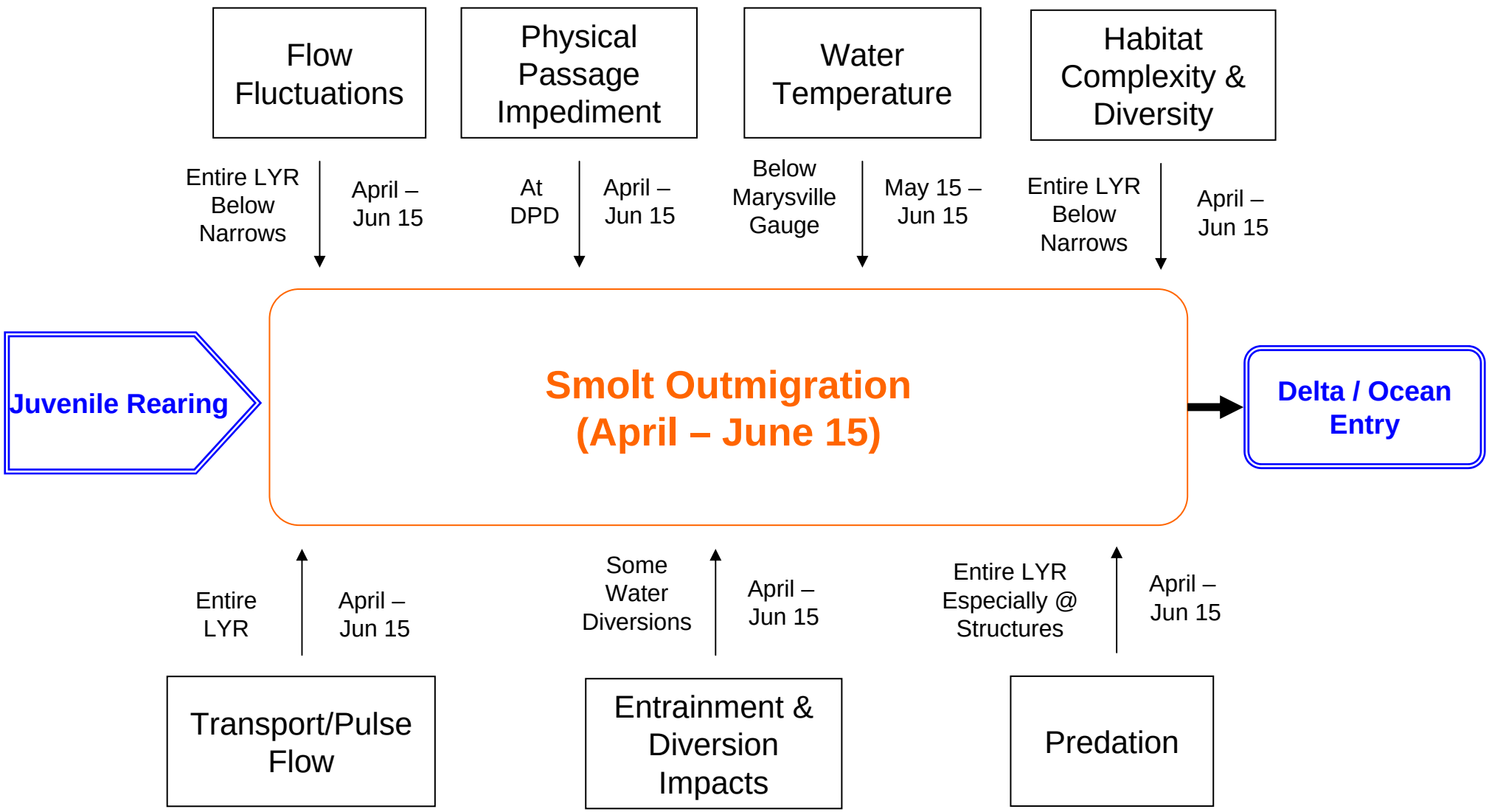
Fisheries Conceptual Model



YBMF Framework

Fall-run Chinook Salmon

Fisheries Conceptual Model



YBMF
Framework

Yuba River Sediment Supply Conceptual Model

- Watershed Area -

Upper Yuba River

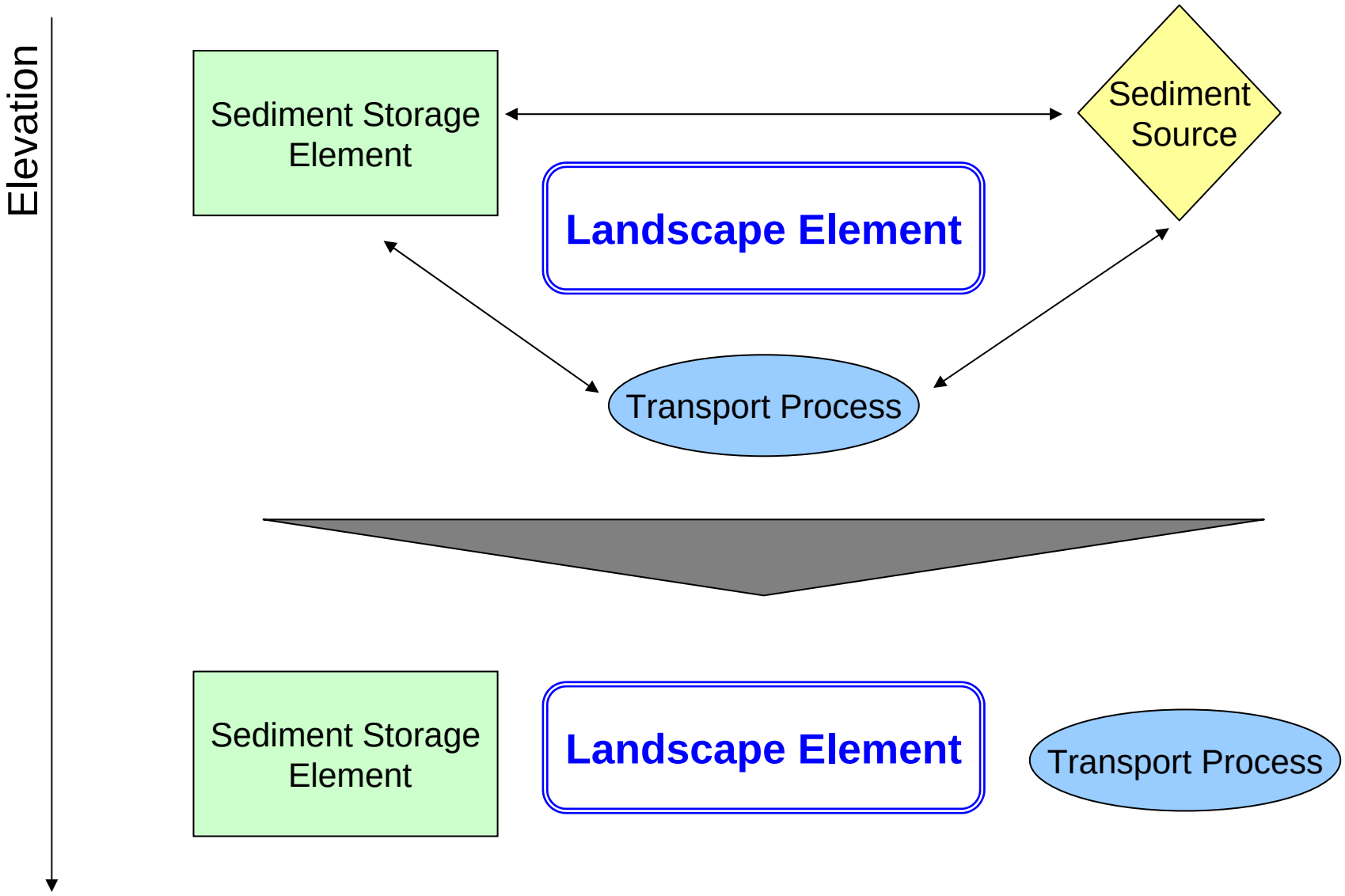
Lower Yuba River

YBMF
Framework

Upper Yuba River Sediment Supply

Conceptual Model

Overview



YBMF Framework

Sediment Supply

UYR Sediment Supply Conceptual Model

- Landscape Elements -

Hillslopes

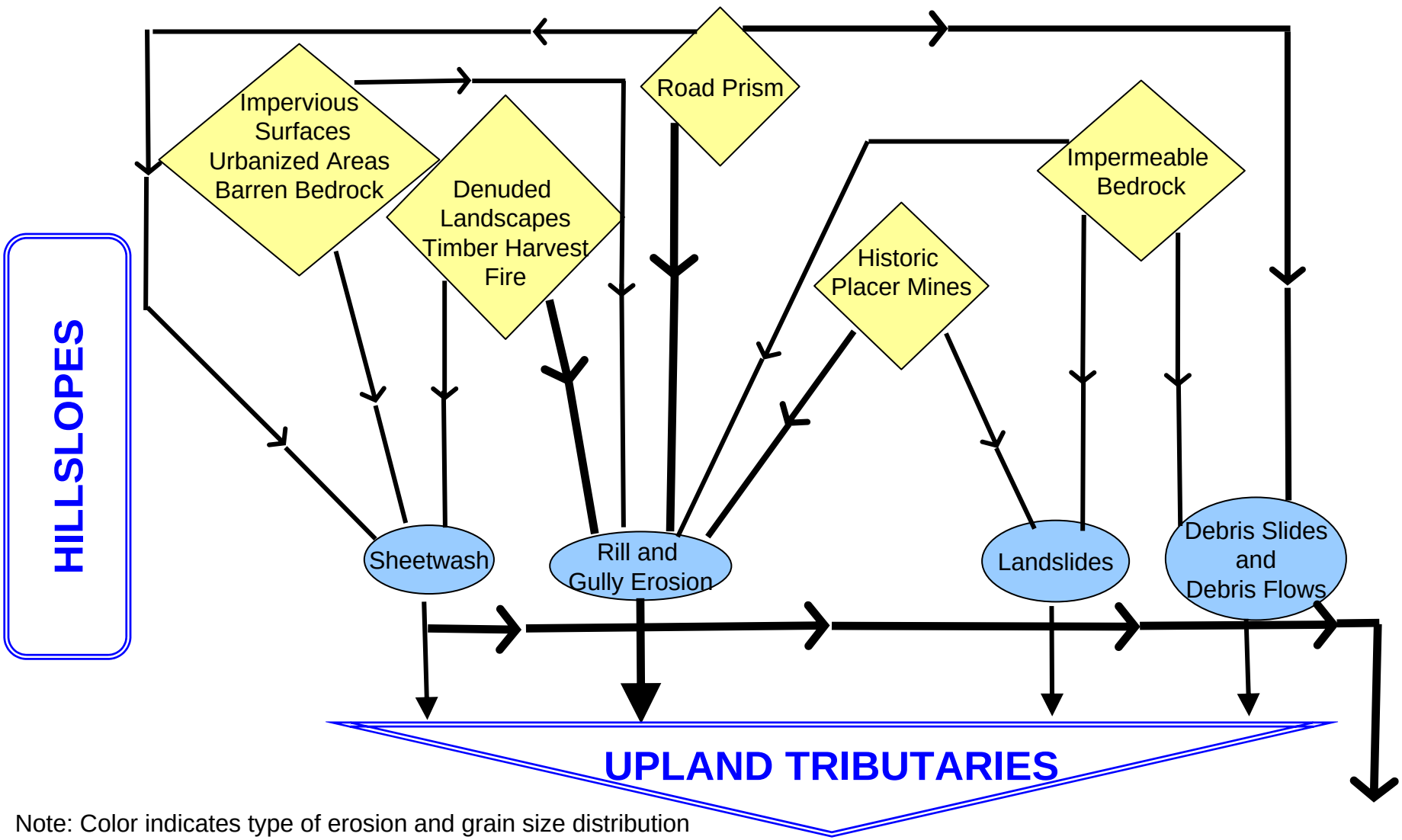
Upland Tributaries

Downstream Tributaries

Englebright Reservoir

YBMF Framework

UYR Sediment Supply Conceptual Model



Note: Color indicates type of erosion and grain size distribution

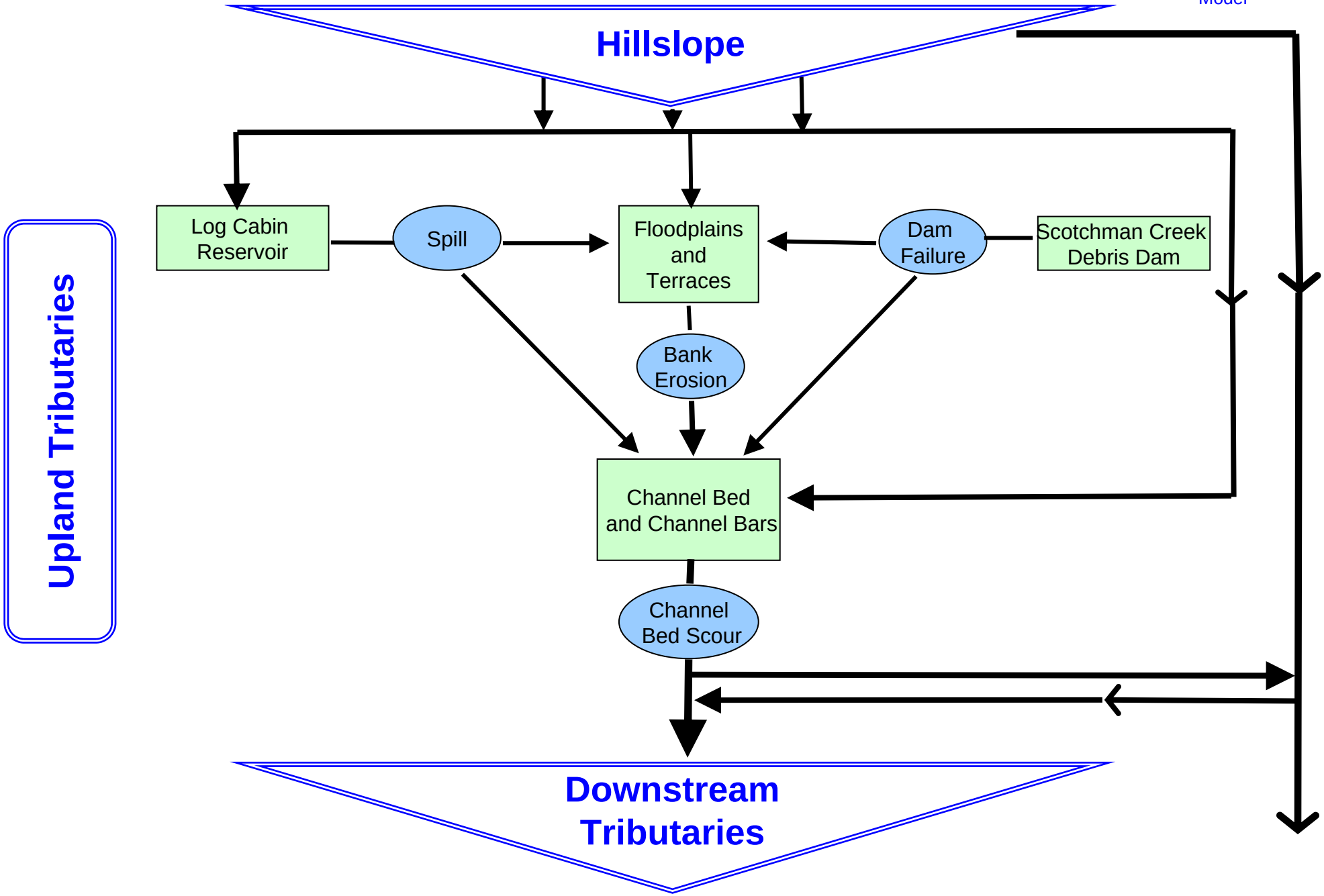
Green = surface erosion contributing primary fines

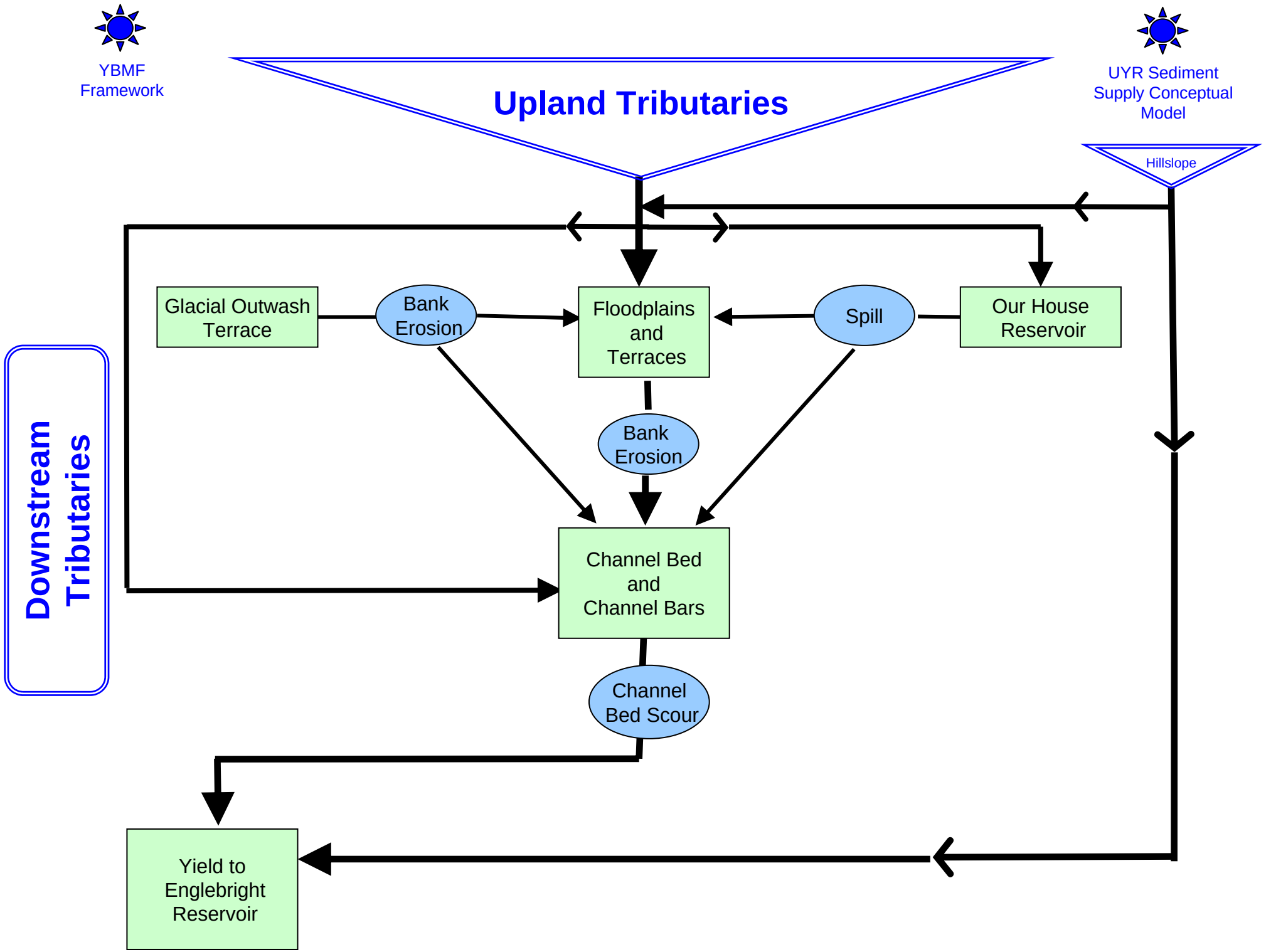
Blue = mass erosion contributing fines to extremely large colluvial boulders

Thickness of arrows indicates relative magnitude of sediment transported on a watershed scale

YBMF Framework

UYR Sediment Supply Conceptual Model




YBMF Framework
Upland Tributaries
UYR Sediment Supply Conceptual Model
Hillslope
Glacial Outwash Terrace
Bank Erosion
Floodplains and Terraces
Spill
Our House Reservoir
Bank Erosion
Downstream Tributaries
Channel Bed and Channel Bars
Channel Bed Scour
Yield to Englebright Reservoir

YBMF
Framework

Yuba River Watershed Flow Conceptual Model

- Watershed Area -

Upper Yuba River

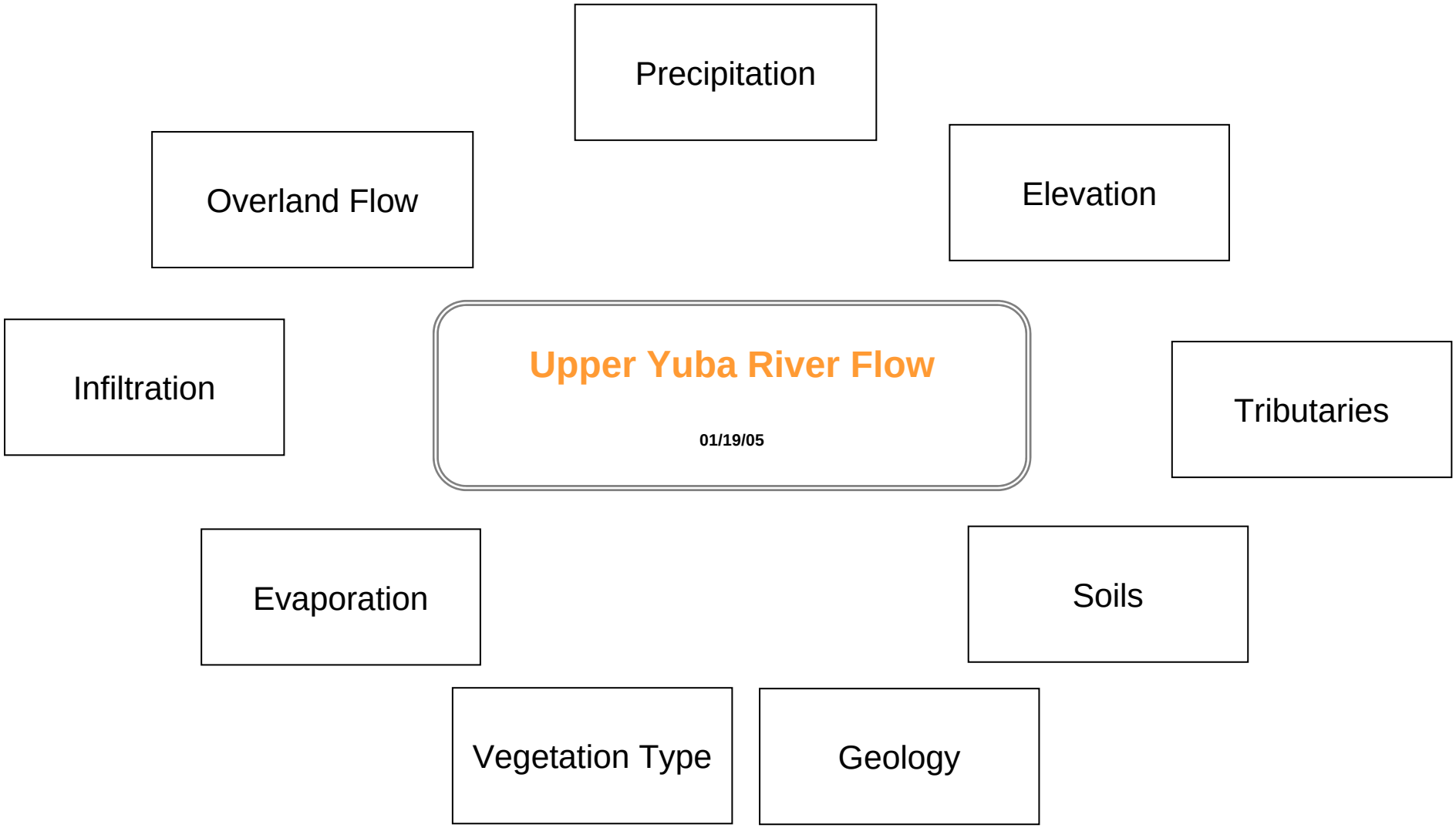
Lower Yuba River

YBMF Framework

Upper Yuba River Watershed Flow Conceptual Model

YBMF Flow Conceptual Model

Rough Sketch



YBMF Framework

Yuba Basin Projects

01/19/05

Project Name	Purpose	Contact & Organization	Information in Framework
Surface Water Data Collection	Collect flow and temperature data in accordance with FERC license #2266 for the Yuba-Bear River Project.	Jessica Erickson - Nevada Irrigation District	
The Relationship Between Flow and Habitat on the Yuba River as a Means to Determine Ecosystem Health	Model quantity and quality of Chinook salmon spawning and rearing habitat over a range of flows.	Mark Gard - USFWS	
Flow and Sediment Transport on the Upper Yuba River	Model flow and sediment transport as part of the Upper Yuba River Studies Program.	Lorrie Flint - USGS	Conceptual Model - Flow & Sediment
Flood Risk Management Studies of the Lower Yuba and Feather Rivers	Assess potential flood and sediment impacts if Englebright Dam were removed or retrofitted as part of the Upper Yuba River Studies Program.	Bob Mussetter - Mussetter Engineering	Project Major Factors
Gravel Data Collection on the Upper Yuba River	Determine if there is enough gravel for salmonid spawning in the Upper Yuba River. Part of the Upper Yuba River Studies Program.	Carl Mesick - Carl Mesick Consulting	
Anadromous Fish Monitoring on Daguerre Point Dam	Monitor adult and juvenile fish passage at Daguerre Point Dam.	Duane Massa/John Nelson - DFG	
Gravel Augmentation	Identify alternatives to improve spawning habitat for Chinook salmon in the Yuba River through hydraulic modeling and gravel assessment.	Paul Wisheropp - ENTRIX	Project Major Factors
Water Temperature Modeling for South and Middle Yuba Rivers	Model temperature in the South and Middle Yuba Rivers based on flow to determine suitability for salmonids.	Rob Tull/Jeanne Brantigan - CH2M Hill	
Hydrodynamic Modeling of Salmonid Spawning Habitat at the Garcia Gravel Pit Reach on the Yuba River	Use hydrodynamic model to predict spatial pattern of 2D hydrodynamics, sediment transport, and Chinook salmon spawning and rearing habitat distribution over a range of flows.	Gregory Pasternack/Hamish Moir - UC Davis	
Lower Yuba River Conceptual Model	Conceptual model of factors affecting anadromous fish populations to guide restoration actions.	Dave Thomas - Robertson-Bryan, Inc.	Conceptual Model - Anadromous Fish
Chemical Data Collection	Collect baseline water quality data for Upper, Middle, and Lower Yuba Rivers	Janet Cohen - SYRCL	
Adult Salmonid Migration Barriers and Holding Habitats in the Upper Yuba River	Collect data on fish passage barriers and holding habitat in the Upper Yuba River as part of Upper Yuba River Studies Program.	Dave Vogel - Natural Resource Scientists	
Fish Passage at Daguerre Point Dam	Identify potential benefits to salmon and steelhead from improved fish passage at Daguerre Point Dam through assessment of habitat conditions and hydraulic modeling of dam removal options.	Tom Taylor - ENTRIX	Project Major Factors

YBMF Framework

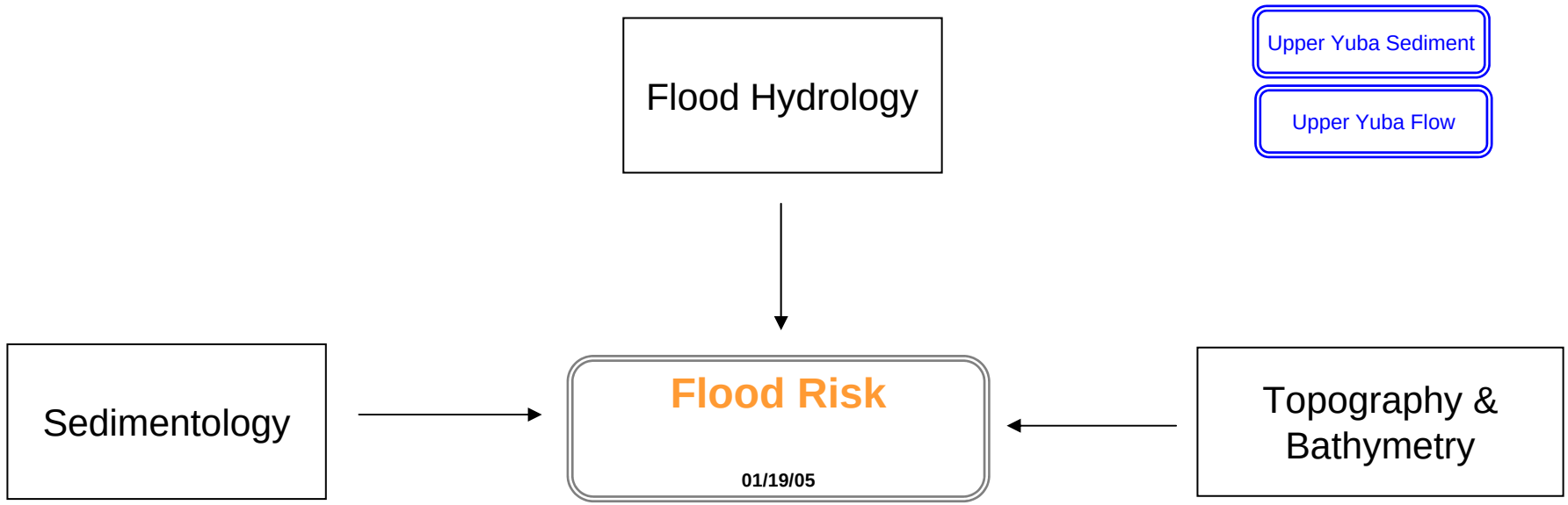
Upper Yuba River Studies Program

Flood Risk Management

Major Factors Being Considered

Yuba Basin Projects

Conceptual Model Relationship



Discussion:

Sediment, topography, and bathymetry data could be used for other projects in the Basin. Data on longitudinal and vertical distribution of sediments may be important to spawning studies. in conceptual model, project relates to Upper Yuba flow and sediment. The Upper Yuba sediment and flow work being done by USGS is being used as part of this project.

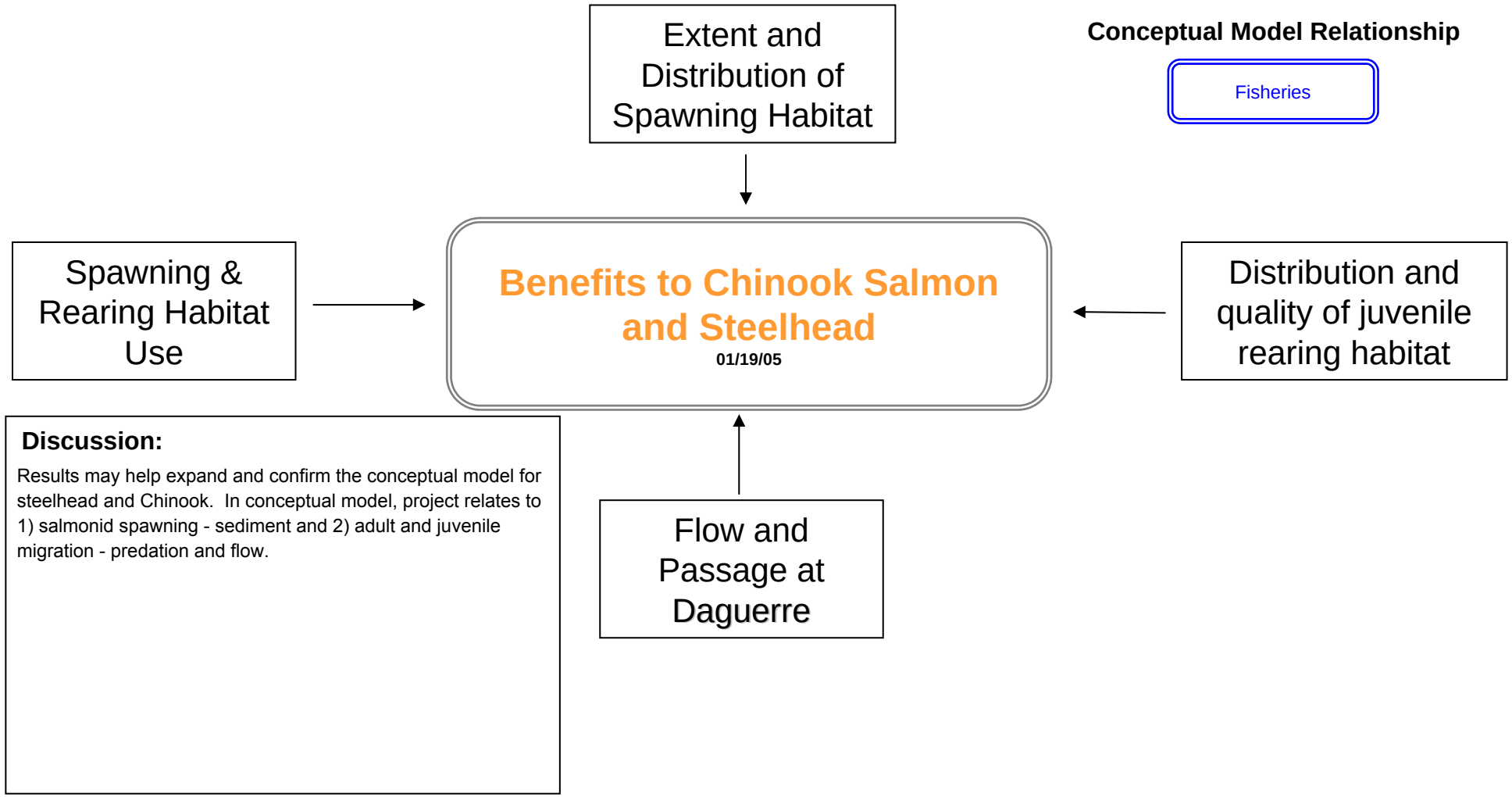
YBMF Framework

Daguerre Point Dam Fish Passage Improvement Project

Yuba Basin Projects

Analysis of Potential Benefits to Salmon and Steelhead from Improved Fish Passage

Major Factors Being Considered



Discussion:

Results may help expand and confirm the conceptual model for steelhead and Chinook. In conceptual model, project relates to 1) salmonid spawning - sediment and 2) adult and juvenile migration - predation and flow.

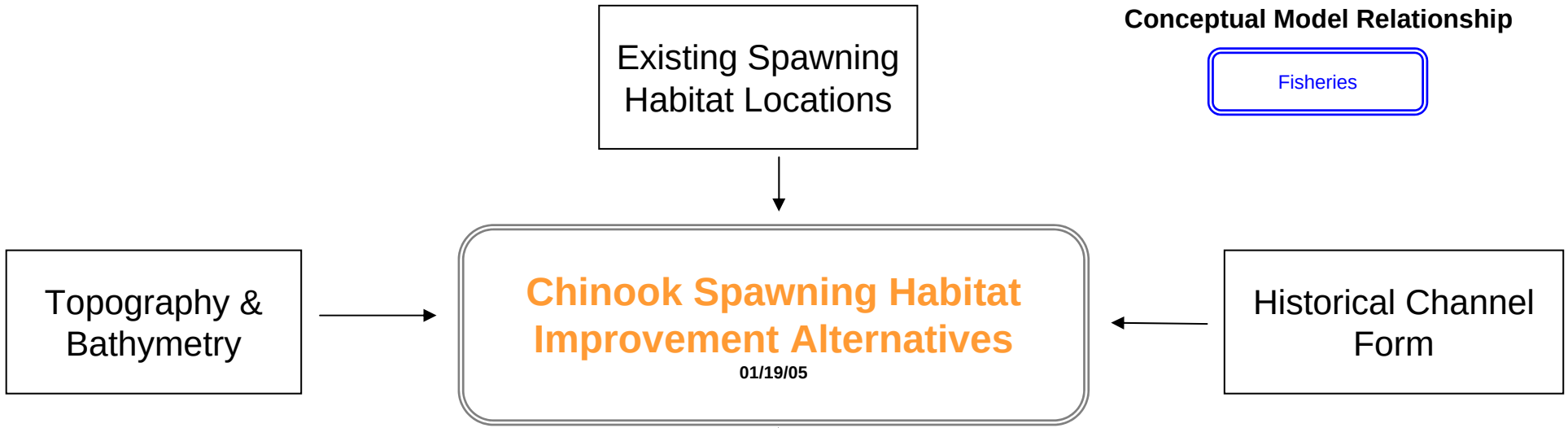
YBMF Framework

Gravel Augmentation

Identification of Alternatives to Improve Chinook Spawning Habitat

Yuba Basin Projects

Major Factors Being Considered



Conceptual Model Relationship

Fisheries

Discussion:

Topography, bathymetry, and GIS data used for this project would be useful to others doing work in the Basin. Results may help expand and confirm conceptual model for Chinook. In conceptual model, project relates to salmonid spawning - sediment.